

Experimental study of ash deformation on Thermalmechanical analysis for the coals of domestic power plant

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Coal mineral matter affects the stability and efficiency when depositing on wall and heat exchanger tube of PC boiler. Slagging and fouling which are produced on heat exchanger surface reduce heat transfer rate and boiler efficiency. The mineral matter in coal is almost unbound chemically with the organic matter. During coal heating some of mineral matter undergo decomposition or reactions with organic matter. The inorganic minerals, transformed into ash during combustion, may deposit onto heat transfer surface. This process is referred to as slagging if the deposit is in a molten and highly viscous state or fouling if the deposit is built by condensed species that vaporized earlier during combustion. Slagging and fouling is related to the characteristics of ash melting behavior.

The goal of this study is to obtain the characteristic of ash melting behavior for slagging and fouling. For this study, Thermomechanical analysis(TMA) is applied and Coals for domestic power plant is used.